

CLAIMS

1. A sliding structure of a shaft member in which
a shaft member is retained slidably in a guide hole,
wherein a plurality of labyrinth grooves are formed in
5 both axial end portions of the side surface of the shaft
member which are located in an area, which are always in
slidable contact with a side surface of the guide hole.

2. An injector which has a needle inserted into a
nozzle supplied with a fuel for injection, is made up of
10 a shaft member and is displaced in the axial direction to
switch between fuel injection and termination of fuel
injection; wherein

15 a structure in which the needle is
retained slidably in a guide hole formed in the nozzle
wall; or

20 a structure in which a valve chamber
provided with a valve body for isolating a back pressure
chamber from a low-pressure source is provided in a low-
pressure flow path for releasing to the low-pressure
source the fuel in the back pressure chamber to which a
high-pressure fuel is supplied and which generates a back
pressure to the needle, and a piston which is made up of
25 a shaft member and presses the valve body into the guide
hole penetrating through the wall of the valve chamber,
is retained, has the sliding structure of a shaft member
set forth in claim 1.